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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/531,689	04/15/2005	Takashi Kenmoku	03500.017653	1818
<div>5514      7590      09/20/2007 FITZPATRICK CELLA HARPER &amp; SCINTO 30 ROCKEFELLER PLAZA NEW YORK, NY 10112</div>				
			EXAMINER LILLING, HERBERT J	
			ART UNIT 1657	PAPER NUMBER
			MAIL DATE 09/20/2007	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/531,689

Applicant(s)

KENMOKU ET AL.

Examiner

HERBERT J. LILLING

Art Unit

1657

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on July 13, 2007 & 4(IDS).
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) 4-29 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☒ Claim(s) 4-29 are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 April 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

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1. Receipt is acknowledged of an amendment to the specification and a response drawn to elections of an invention and species filed July 13, 2007.
2. Claims 1-29 remain pending in this application which is a 371 of PCT/JP03/13531 filed October 23, 2003 which claims benefit to Japan 2002-310250 filed October 24, 2002 and Japan 2003-356748 filed October 16, 2003.
3. Applicant has elected with traverse, Group I, claims 1-3 drawn to a product of a polyhydroxy alkanoate copolymer characterized in including at least a 3-hydroxy- $\omega$ -alkenoic acid unit represented by a chemical formula (1) in a molecule, **and simultaneously at least** a 3-hydroxy- $\omega$ -alkanoic acid unit represented by a chemical formula (2) or a 3-hydroxy- $\omega$ -cyclohexylalkanoic acid unit represented by a chemical formula (3) in the molecule with the following elections of species:

- A. Whereby the PHA copolymer including at least a unit of Formula 1;
- B. Whereby the PHA copolymer also including a unit of Formula 2; and
- C. Whereby there is a Phenyl residue represented by formula 8.

Applicant has failed to provide any persuasive arguments for withdrawal of the restriction and elections of species. Thus, the response has been considered to be "without traverse".

The restriction and election requirements have been made FINAL.

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4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-3 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for examples for preparing copolymeric products having units of monomeric units, does not reasonably provide enablement for the claimed products having specific structure(s) containing the specific units in specific ratios. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and practice the invention commensurate in scope with these claims.

Applicant has failed to provide evidence of isolating a single product having a specific structure and properties but only mixtures of polymers having monomeric units having an average molecular weight for the mixture of different polymers in the mixture. Applicant has failed to provide a purified product having specific properties, which includes molecular weight (MW), B.P.; M.P. or any other intrinsic properties.

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

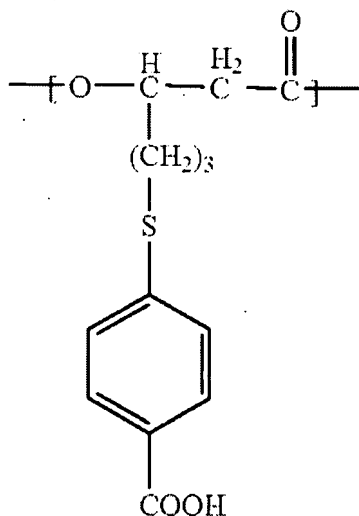
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Claims 1-3 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Imamura et al U.S.

7,045,321 alone or further in view of Kenmoku et al U.S. 6,869,782.

Imamura et al teaches in

(11)



30. A process for producing a polyhydroxyalkanoate having in the molecule a unit represented by Chemical formula (1); the process comprising the step of allowing a polyhydroxyalkanoate having in the molecule a 3-hydroxy-w-alkenoic acid unit represented by Chemical Formula (28), to react with a substituted benzenethiol represented by Chemical Formula (23)

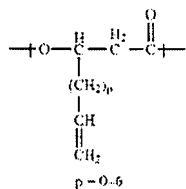
The reference teaches a 3-hydroxy w-alkenoic acid unit (28) which is within the scope of formula 1 as required by claim 1 for the instantly claimed

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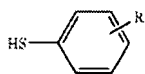
invention and with a copolymeric unit as noted by formula 2 which is the same as formula as noted by the reference U.S.7045321.

## US 7,045,321 B2

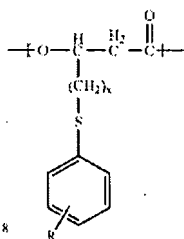
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wherein  $p$  may assume any one integral value within the range shown in the chemical formula



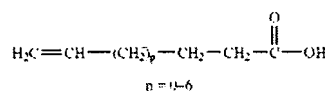
wherein  $R$  is arbitrarily selected from a hydrogen atom, a halogen atom,  $\text{CN}$ ,  $\text{NO}_2$ ,  $\text{COOR}'$ ,  $\text{SO}_2\text{R}''$ ,  $\text{CH}_3$ ,  $\text{C}_2\text{H}_5$ ,  $\text{C}_3\text{H}_7$ ,  $\text{C}(\text{CH}_3)_2\text{H}$  and  $\text{C}(\text{CH}_3)_3$ ; where  $R'$  is  $\text{H}$ ,  $\text{Na}$ ,  $\text{K}$ ,  $\text{CH}_3$  or  $\text{C}_2\text{H}_5$ , and  $R''$  is  $\text{OH}$ ,  $\text{ONa}$ ,  $\text{OK}$ , a halogen atom,  $\text{OCH}_3$  or  $\text{OC}_2\text{H}_5$



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(28) wherein  $R$  is arbitrarily selected from a hydrogen atom, a halogen atom,  $\text{CN}$ ,  $\text{NO}_2$ ,  $\text{COOR}'$ ,  $\text{SO}_2\text{R}''$ ,  $\text{CH}_3$ ,  $\text{C}_2\text{H}_5$ ,  $\text{C}_3\text{H}_7$ ,  $\text{C}(\text{CH}_3)_2\text{H}$  and  $\text{C}(\text{CH}_3)_3$ ; where  $R'$  is  $\text{H}$ ,  $\text{Na}$ ,  $\text{K}$ ,  $\text{CH}_3$  or  $\text{C}_2\text{H}_5$ , and  $R''$  is  $\text{OH}$ ,  $\text{ONa}$ ,  $\text{OK}$ , a halogen atom,  $\text{OCH}_3$  or  $\text{OC}_2\text{H}_5$ ; and  $x$  is an integer arbitrarily selected from 2 to 8; with the proviso that a polyhydroxyalkanoate is excluded which has a hydrogen atom as  $R$  and  $x$  in all the units is 2 or 4.

(23) 31. The process according to claim 30, wherein the polyhydroxyalkanoate having in the molecule the 3-hydroxy- $\omega$ -alkenoic acid unit represented by Chemical Formula (28) is produced by a process comprising the step of culturing a microorganism in a culture medium containing at least one  $\omega$ -alkenoic acid represented by Chemical Formula (29)



(31) wherein  $p$  may assume any one integral value within the range shown in the chemical formula.

32. The process according to claim 1, wherein the microorganism belongs to genus *Pseudomonas*.

33. The process according to claim 32, wherein the microorganism is at least one selected from the group consisting of *Pseudomonas cichorii* YN2, FERM BP-7375, *Pseudomonas cichorii* H45, FERM BP-7374, *Pseudomonas jessenii* P161, FERM BP-7376, and *Pseudomonas putida* P91, FERM BP-7373.

\* \* \* \* \*

6. Claims 1-3 are rejected under 35 U.S.C. 103(a) as obvious over Imamura et al U.S. 7,045,321 alone or further in view of Kenmoku et al U.S. 6,869,782.

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The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Further in view of *KSR Inter Co v. Teleflex Inc* 550 US, 82USPQ2d 1385 (2007)

The issue is that the copolymers as taught by Imamura et al differ only in the analog bonding which copolymeric products are prepared by the same method to form similar products having the same properties. Thus, the specific phenoxy component unit would have been prima facie obvious to one of ordinary skill in the art in view of US 7,045,321 further in view of Imamura et al to substitute the phenoxy unit for that of formula 1 as taught in US 7,045,321 since it would be reasonable to expect to obtain the same properties absent a showing to the contrary. The copolymeric products are not patentable over the references since one skilled in the art could have combined by the same known methods with no change in their respective functions and the combination would have yielded predictable results to one of ordinary skill in the art at the time of the invention. It is also noted that the claims to a copolymer that is prima facie obvious based on the primary reference having the primary unit of unsaturation which properties are intrinsic to the copolymer of the reference will not be considered to patentable due to the alleged improvements since patentability of old or obvious products with

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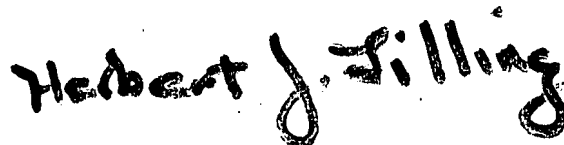
alleged inherent or intrinsic properties not disclosed does not impart patentability for the old products.

7. **No claim is allowed.**

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Lilling whose telephone number is 571-272-0918 and Fax Number is **571-273-8300**, or SPE Jon Weber whose telephone number is 571-272-0925. Examiner can be reached Monday-Friday from about 7:30 A.M. to about 7:00 P.M. Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 308-0196.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

H.J.Lilling: HJL  
(571) 272-0918  
Art Unit **1657**  
September 04, 2007

A handwritten signature in black ink that reads "Herbert J. Lilling". The signature is written in a cursive, slightly slanted style.

Dr. Herbert J. Lilling  
Primary Examiner  
Group 1600 Art Unit 1657